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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/723,239	11/28/2000	Manabu Ueda	107980	5913
25944	7590	08/16/2004	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			BELL, MELTIN	
			ART UNIT	PAPER NUMBER
			2121	

DATE MAILED: 08/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/723,239

Applicant(s)

UEDA ET AL.

Examiner

Meltin Bell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date 6/24/04
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This non-final action is responsive to application **09/723,239** filed 11/28/2000 as well as the 5/17/04 Remarks and Amendments to the specification and claims. Claims 1-37 filed by the applicant have been entered and examined. An action on the merits of claims 1-37 appears below.

Priority

Applicant is advised of possible benefits under 35 U.S.C. 119(a)-(d), wherein an application for patent filed in the United States may be entitled to the benefit of the filing date of a prior application filed in a foreign country.

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file (Japanese priority #s 2000-280252 dated 09/14/2000 and 2000-014107 dated **01/19/2000**).

Claim Rejections - 35 USC § 103

Applicant's 35 USC 102 argument with respect to claim 26 and 35 USC 103 arguments with respect to claims 1-25 and 27-37 have been considered but are moot in view of new ground(s) of rejection. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been

obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Office presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Office to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 15 and 27-31 are rejected under 35 U.S.C. 103(a) as being obvious over *Warren et al* USPN 5,632,022 "Encyclopedia of software components" (Patented May 20, 1997) in view of *Shin et al* USPN 5,808,914 "Table allocating apparatus and method" (Patented September 15, 1998) and in further view of *Altschuler et al* USPN 6,556,983 "Methods and apparatus for finding semantic information, such as usage logs, similar to a query using a pattern lattice data space" (Patented April 29, 2003; Filed January 12, 2000).

Regarding claim 1:

Warren et al teaches,

- means for storing (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-") a plurality of definitions (column 10, lines 9-29, "The

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Publisher is ... with the database") of epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details") for domains of the process (Fig. 6; column 2, lines 37-55, "It is the ... for any platforms, etc.") to be described (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer")

- means for storing attributes (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-"; column 4, lines 1-8, "ware component is ... of each tray) of the activities (Figs. 2, 11; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012") of the process to be described (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer") for each of the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details")

- means for storing attributes (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-"; column 4, lines 1-8, "ware component is ... of each tray) of the resource (Figs. 6, 15; column 11, lines 6-14, "the ESC contains software ... to the user") of the processes to be described (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer") for each of the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details")

- means for storing attributes (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-"; column 4, lines 1-8, "ware component is ... of each tray) of the dependence relationships of the process to be described (Figs.

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2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate") for each of the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details")

- means for inputting (Abstract, "Intelligent browsing through ... the one component"; Figs. 3, 10) a definition (column 10, lines 9-29, "The Publisher is ... with the database"; column 13, lines 49-67, "Plate Definitions Each ... user might read"; column 14, lines 1-3, "The format for ... user may click") of the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details") for classifying the process (column 7, lines 48-67, "The titles 100 on ... deeper levels in the"; column 8, lines 1-8, "open-book window. Index tabs ... in greater detail below")

- means for analyzing (Figs. 3, 10, 14; column 11, lines 31-49, "The system of FIG. 3 ... to the analysis subsystem 1012"; column 13, lines 1-14, "The Software Engineering Analysis ... central tool base") and describing the process (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer") from the attributes (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-"; column 4, lines 1-8, "ware component is ... of each tray) of the activities (Figs. 2, 11; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), the attributes of the dependence relationship (Figs.

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2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate"), and the attributes of the resource (Figs. 6, 15; column 11, lines 6-14, "the ESC contains software ... to the user") of the process based on the defined (column 10, lines 9-29, "The Publisher is ... with the database") epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details")

- means for determining whether or not an exit condition (Figs. 3, 10; column 17, lines 6-10, "Exit Paths Field: ... of the components") of description defined (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer"; column 10, lines 9-29, "The Publisher is ... with the database") in the epistemological ground (column 6, lines 39-55, "We choose the metaphor ... without learning the details") is satisfied
- means for displaying the activities, the resource, and the dependence relationship as figure elements (Abstract, "Intelligent browsing through ... the one component"; Figs. 2-3, 5-6, 10, 15-16)
- wherein the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details") includes information concerning definitions (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer"; column 10, lines 9-29, "The Publisher is ... with the database") of the activity, resource (Figs. 2, 6, 11, 15; column 11, lines 6-14, "the ESC contains software ... to the user"; column 11, lines 31-67, "The system of

FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), and the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate")

However, *Warren et al* doesn't explicitly teach end conditions or means for characterizing an E-R model, wherein E and R of the E-R model are related to activity and dependence relationship respectively and a polynomial link of n to m is allowed in R while *Shin et al* teaches,

- means for determining whether or not an end condition of description defined in the epistemological ground is satisfied (Figs. 1, 11, 13-15; column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")

- means for repeating (Figs. 1, 11, 13-15; column 15, line 67, "the following process operation is repeated from"; column 16, lines 1-6, "I=1 to H. As to all ... multiplication of matrixes") the inputting and analyzing steps until the end condition is determined to be satisfied (column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")

- means for (column 15, lines 16-28, "These objective function ... linear programming problem"; column 25, lines 2-39, "at step S43, the line ... be discussed later") characterizing attribute parameter (column 3, lines 41-48, "the

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user opens the ... sets the default value"; column 11, lines 13-45, "based upon such characteristics ... problem solution engine unit") dependence relationships (column 10, lines 26-37, "When characters whose ... easily extended, or expanded"; column 23, lines 49-67, "The layout evaluation ... Based upon the; column 24, lines 1-43, "series of combinations ... solve the problem (j_1, \dots, j_k)" and a link (column 35, lines 60-62, "The linear programming problem ... the status for indicating"; column 36, lines 1-14, "basic solution is given ... at a top priority") of n (column 5, lines 52-58, "Generally speaking, it is ... condition are indicated"; column 6, lines 17-24, "Among these examples ... conventional document processing systems") to m (column 12, lines 6-33, "in an example ... is normally employed") is allowed (column 4, lines 17-20, "When a designation is ... and the table margin") in R (column 20, lines 61-66, "The simplex table ... a_r -th column vector"; column 21, lines 9-14, "The relative portion ... major portion hereinafter"; column 22, lines 23-67, "The section constraint condition ... defined is limited"; column 32, lines 42-66, "The simplex table major ... constraint condition matrix"; column 33, lines 2-3, "Here, symbol r ... constraint condition matrix"; column 40, lines 19-27, "At step S132, when ... is advanced to step S136")

Altschuler et al teaches,

- means for (Fig. 1A-B) characterizing (column 48, lines 33-37, "a semantic label ... current, near-by labels") an E-R model, wherein E and R of the E-R model (column 13, lines 33-40, "all data is ... entity relationship diagrams") are related to activity and dependence relationship respectively (column 1, lines 61-67,

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"These hyper-text links ... for example by"; column 2, lines 1-3, "clicking a mouse ... to the user"; column 5, lines 12-27, "Without any semantic ... interpreting semantic relationships") and a polynomial (column 24, lines 47-67, "Semantic data may ... isomorphism algorithms exist") link of n to m is allowed in R (column 18, lines 23-40, "To appreciate the ... using k relationship links"; column 20, lines 64-67, "One of the ... and destinations. Recall"; column 21, lines 1-5, "from §4.2.4 above that ... conceptually complete concepts"; column 35, lines 1-9, "1. η is a frontier link ... the in-links of N_2 "; column 35, lines 15-23, "The following method ... N, G, L ")

Motivation – The portions of the claimed apparatus would have been a highly desirable feature in this art for

- Calculating optimum layout and parameter values (*Shin et al*, column 11, lines 26-32, "The optimum layout ... layout it produced")
- Reducing lattice size and preserving inherent entity relationships (*Altschuler et al*, column 21, lines 8-13, "Since semantic modeling ... relationships among entities")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Warren et al* as taught by *Shin et al* and *Altschuler et al* for the purpose of calculating optimum layout and parameter values as well as reducing lattice size and preserving inherent entity relationships.

Regarding claims 4-6, 9, 12, 22:

Claims 4-6, 9, 12 and 22 are rejected for being dependent on the above rejected independent claim 1.

Regarding claim 2:

Warren et al teaches,

- means for (Figs. 3, 10) specifying an epistemological ground (column 6, lines 39-55, "We choose the metaphor ... without learning the details") for a domain of the process (Fig. 6; column 2, lines 37-55, "It is the ... for any platforms, etc.") to be described (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer")
- means for storing attributes (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-"; column 4, lines 1-8, "ware component is ... of each tray) of the activities (Figs. 2, 11; column 11, lines 31-67, "The system of FIG. 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012") of the process to be described (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer") for each of the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details"); means for storing attributes of the resource (Figs. 6, 15; column 11, lines 6-14, "the ESC contains software ... to the user") of the process to be described for each of the epistemological grounds; means for storing attributes of the dependence relationship of the process to be described (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software

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topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate") for each of the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details")

- means for inputting (Abstract, "Intelligent browsing through ... the one component"; Figs. 3, 10) a definition (column 10, lines 9-29, "The Publisher is ... with the database"; column 13, lines 49-67, "Plate Definitions Each ... user might read"; column 14, lines 1-3, "The format for ... user may click") of the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details") for classifying the process (column 7, lines 48-67, "The titles 100 on ... deeper levels in the"; column 8, lines 1-8, "open-book window. Index tabs ... in greater detail below")

- means for analyzing (Figs. 3, 10, 14; column 11, lines 31-49, "The system of FIG. 3 ... to the analysis subsystem 1012"; column 13, lines 1-14, "The Software Engineering Analysis ... central tool base") and describing the process (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer") from the attributes (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-"; column 4, lines 1-8, "ware component is ... of each tray) of the activities (Figs. 2, 11; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), the attributes of the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines

16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate"), and the attributes of the resource (Figs. 6, 15; column 11, lines 6-14, "the ESC contains software ... to the user") of the process based on the defined (column 10, lines 9-29, "The Publisher is ... with the database") epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details")

- means for determining whether or not an exit condition (Figs. 3, 10; column 17, lines 6-10, "Exit Paths Field: ... of the components") of description defined (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer"; column 10, lines 9-29, "The Publisher is ... with the database") in the epistemological ground (column 6, lines 39-55, "We choose the metaphor ... without learning the details") is satisfied
- means for displaying at least one of the activities, the resource, and the dependence relationships as a figure element (Abstract, "Intelligent browsing through ... the one component"; Figs. 2-3, 5-6, 10, 15-16),
- wherein the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details") includes information concerning definitions (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer"; column 10, lines 9-29, "The Publisher is ... with the database") of the activity, resource (Figs. 2, 6, 11, 15; column 11, lines 6-14, "the ESC contains software ... to the user"; column 11, lines 31-67, "The system of FIG. 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), and the dependence relationship

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(Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate")

However, *Warren et al* doesn't explicitly teach end conditions or means for characterizing an E-R model, wherein E and R of the E-R model are related to activity and dependence relationship respectively and a polynomial link of n to m is allowed in R while *Shin et al* teaches,

- means for determining whether or not an end condition of description defined in the epistemological ground is satisfied (Figs. 1, 11, 13-15; column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")

- means for repeating (Figs. 1, 11, 13-15; column 15, line 67, "the following process operation is repeated from"; column 16, lines 1-6, "I=1 to H. As to all ... multiplication of matrixes") the inputting and analyzing steps until the end condition is determined to be satisfied (column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")

- means for (column 15, lines 16-28, "These objective function ... linear programming problem"; column 25, lines 2-39, "at step S43, the line ... be discussed later") characterizing attribute parameter (column 3, lines 41-48, "the user opens the ... sets the default value"; column 11, lines 13-45, "based upon such characteristics ... problem solution engine unit") dependence relationships

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(column 10, lines 26-37, "When characters whose ... easily extended, or expanded"; column 23, lines 49-67, "The layout evaluation ... Based upon the; column 24, lines 1-43, "series of combinations ... solve the problem (j_1, \dots, j_k)" and a link (column 35, lines 60-62, "The linear programming problem ... the status for indicating"; column 36, lines 1-14, "basic solution is given ... at a top priority") of n (column 5, lines 52-58, "Generally speaking, it is ... condition are indicated"; column 6, lines 17-24, "Among these examples ... conventional document processing systems") to m (column 12, lines 6-33, "in an example ... is normally employed") is allowed (column 4, lines 17-20, "When a designation is ... and the table margin") in R (column 20, lines 61-66, "The simplex table ... a_r -th column vector"; column 21, lines 9-14, "The relative portion ... major portion hereinafter"; column 22, lines 23-67, "The section constraint condition ... defined is limited"; column 32, lines 42-66, "The simplex table major ... constraint condition matrix"; column 33, lines 2-3, "Here, symbol r ... constraint condition matrix"; column 40, lines 19-27, "At step S132, when ... is advanced to step S136")

Altschuler et al teaches,

- means for (Fig. 1A-B) characterizing (column 48, lines 33-37, "a semantic label ... current, near-by labels") an E-R model, wherein E and R of the E-R model (column 13, lines 33-40, "all data is ... entity relationship diagrams") are related to activity and dependence relationship respectively (column 1, lines 61-67, "These hyper-text links ... for example by"; column 2, lines 1-3, "clicking a mouse ... to the user"; column 5, lines 12-27, "Without any semantic ... interpreting

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semantic relationships”) and a polynomial (column 24, lines 47-67, “Semantic data may ... isomorphism algorithms exist”) link of n to m is allowed in R (column 18, lines 23-40, “To appreciate the ... using k relationship links”; column 20, lines 64-67, “One of the ... and destinations. Recall”; column 21, lines 1-5, “from §4.2.4 above that ... conceptually complete concepts”; column 35, lines 1-9, “1. η is a frontier link ... the in-links of N_2 ”; column 35, lines 15-23, “The following method ... N, G, L ”)

Motivation – The portions of the claimed apparatus would have been a highly desirable feature in this art for

- Calculating optimum layout and parameter values (*Shin et al*, column 11, lines 26-32, “The optimum layout ... layout it produced”)
- Reducing lattice size and preserving inherent entity relationships (*Altschuler et al*, column 21, lines 8-13, “Since semantic modeling ... relationships among entities”)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Warren et al* as taught by *Shin et al* and *Altschuler et al* for the purpose of calculating optimum layout and parameter values as well as reducing lattice size and preserving inherent entity relationships.

Regarding claims 7, 10, 13, 23:

Claims 7, 10, 13 and 23 are rejected for being dependent on the above rejected independent claim 2.

Regarding claim 3:

Warren et al teaches,

- means for storing (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-") process activities, the resource, and the dependence relationships under a predetermined domain identifier for a domain of the process (Fig. 2, 6, 15; column 2, lines 37-55, "It is the ... for any platforms, etc."; column 11, lines 6-14, "the ESC contains software ... to the user") to be described (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer")
- means for assigning a domain identifier (Figs. 2, 15; column 11, lines 6-14, "the ESC contains software ... to the user") to the process to be described (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer")
- means for describing attributes (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-"; column 4, lines 1-8, "ware component is ... of each tray) of the activities (Figs. 2, 11; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012") of the process to be described (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer") under the assigned domain identifier (Figs. 2, 15; column 11, lines 6-14, "the ESC contains software ... to the user")
- means for describing attributes (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-"; column 4, lines 1-8, "ware component is ... of each tray) of the resource (Figs. 6, 15; column 11, lines 6-14,

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"the ESC contains software ... to the user") of the process to be described (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer") under the assigned domain identifier (Figs. 2, 15; column 11, lines 6-14, "the ESC contains software ... to the user")

- means for describing attributes (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-"; column 4, lines 1-8, "ware component is ... of each tray) of the dependence relationships of the process to be described (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate") under the assigned domain identifier (Figs. 2, 15; column 11, lines 6-14, "the ESC contains software ... to the user")

- means for inputting (Abstract, "Intelligent browsing through ... the one component"; Figs. 3, 10) a definition (column 10, lines 9-29, "The Publisher is ... with the database"; column 13, lines 49-67, "Plate Definitions Each ... user might read"; column 14, lines 1-3, "The format for ... user may click") of the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details") for classifying the process (column 7, lines 48-67, "The titles 100 on ... deeper levels in the"; column 8, lines 1-8, "open-book window. Index tabs ... in greater detail below")

- means for analyzing (Figs. 3, 10, 14; column 11, lines 31-49, "The system of FIG. 3 ... to the analysis subsystem 1012"; column 13, lines 1-14, "The Software

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Engineering Analysis ... central tool base") the process (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer") from the attributes (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-"; column 4, lines 1-8, "ware component is ... of each tray) of the activities (Figs. 2, 11; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), the attributes of the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate"), and the attributes of the resource (Figs. 6, 15; column 11; lines 6-14, "the ESC contains software ... to the user") of the process based on the defined (column 10, lines 9-29, "The Publisher is ... with the database") epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details")

- means for displaying at least one of the activities, the resource, and the dependence relationships as a figure element, (Abstract, "Intelligent browsing through ... the one component"; Figs. 2-3, 5-6, 10, 15-16)
- wherein the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details") includes information concerning definitions (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer"; column 10, lines 9-29, "The Publisher is ... with the database") of the activity, resource (Figs. 2, 6, 11, 15; column 11, lines 6-14, "the

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ESC contains software ... to the user"; column 11, lines 31-67, "The system of FIG. 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), and the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate")

However, *Warren et al* doesn't explicitly teach constraints, end conditions or means for characterizing an E-R model, wherein E and R of the E-R model are related to activity and dependence relationship respectively and a polynomial link of n to m is allowed in R while *Shin et al* teaches,

- means for determining whether or not an end condition of description defined in the epistemological ground is satisfied (Figs. 1, 11, 13-15; column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")

- means for repeating (Figs. 1, 11, 13-15; column 15, line 67, "the following process operation is repeated from"; column 16, lines 1-6, "I=1 to H. As to all ... multiplication of matrixes") the inputting and analyzing steps until the end condition is determined to be satisfied (column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")

- automatically satisfying predetermined constraint conditions (column 7, lines 7-24, "according to the ... columns are allocated")

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Altschuler et al teaches,

- means for (Fig. 1A-B) characterizing (column 48, lines 33-37, "a semantic label ... current, near-by labels") an E-R model, wherein E and R of the E-R model (column 13, lines 33-40, "all data is ... entity relationship diagrams") are related to activity and dependence relationship respectively (column 1, lines 61-67, "These hyper-text links ... for example by"; column 2, lines 1-3, "clicking a mouse ... to the user"; column 5, lines 12-27, "Without any semantic ... interpreting semantic relationships") and a polynomial (column 24, lines 47-67, "Semantic data may ... isomorphism algorithms exist") link of n to m is allowed in R (column 18, lines 23-40, "To appreciate the ... using k relationship links"; column 20, lines 64-67, "One of the ... and destinations. Recall"; column 21, lines 1-5, "from §4.2.4 above that ... conceptually complete concepts"; column 35, lines 1-9, " $1. \eta$ is a frontier link ... the in-links of N_2 "; column 35, lines 15-23, "The following method ... N, G, L ")

Motivation – The portions of the claimed apparatus would have been a highly desirable feature in this art for

- Calculating optimum layout and parameter values (*Shin et al*, column 11, lines 26-32, "The optimum layout ... layout it produced")
- Reducing lattice size and preserving inherent entity relationships (*Altschuler et al*, column 21, lines 8-13, "Since semantic modeling ... relationships among entities")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Warren et al* as taught by *Shin et al* and *Altschuler et al* for the purpose of calculating optimum layout and parameter values as well as reducing lattice size and preserving inherent entity relationships.

Regarding claims 8, 11, 14, 24:

Claims 8, 11, 14 and 24 are rejected for being dependent on the above rejected independent claim 3.

Regarding claim 15:

Warren et al teaches,

- describing a target of the real world, to be described as a model of the process (column 15, lines 32-50, "H/W Kind Field: ... the component operational") in which a plurality of activities (Figs. 2, 11; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012") operate having dependence relationships (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate") via a resource (Figs. 6, 15; column 11, lines 6-14, "the ESC contains software ... to the user")
- describing (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer") a course and purpose of a process description (column 10,

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lines 32-36, "a user can ... of Software Components") proper to a target domain (column 17, lines 17-32, "Call Plate: The ... cut and-paste environment") in an epistemological ground (column 6, lines 39-55, "We choose the metaphor ... without learning the details") in description of the three components of the activity (Figs. 2, 11; column 11, lines 31-67, "The system of FIG. 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), the resource (Figs. 6, 15; column 11, lines 6-14, "the ESC contains software ... to the user"), and the dependence relationships (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate")

- means for inputting (Abstract, "Intelligent browsing through ... the one component"; Figs. 3, 10) a definition (column 10, lines 9-29, "The Publisher is ... with the database"; column 13, lines 49-67, "Plate Definitions Each ... user might read"; column 14, lines 1-3, "The format for ... user may click") of the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details") for classifying the process (column 7, lines 48-67, "The titles 100 on ... deeper levels in the"; column 8, lines 1-8, "open-book window. Index tabs ... in greater detail below")

- analyzing (Figs. 3, 10, 14; column 11, lines 31-49, "The system of FIG. 3 ... to the analysis subsystem 1012"; column 13, lines 1-14, "The Software Engineering Analysis ... central tool base") and describing the process (column 4, lines 50-57,

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"Future embodiments of ... facilitate technology transfer") from attributes (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-"; column 4, lines 1-8, "ware component is ... of each tray) of the activities (Figs. 2, 11; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), attributes of the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate"), and attributes of the resource (Figs. 6, 15; column 11, lines 6-14, "the ESC contains software ... to the user") of the process based on the defined (column 10, lines 9-29, "The Publisher is ... with the database") epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details")

- wherein the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details") includes information concerning definitions (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer"; column 10, lines 9-29, "The Publisher is ... with the database") of the activity, resource (Figs. 2, 6, 11, 15; column 11, lines 6-14, "the ESC contains software ... to the user"; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), and the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented

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database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate")

However, *Warren et al* doesn't explicitly teach constraints, end conditions or characterizing an E-R model, wherein E and R of the E-R model are related to activity and dependence relationship respectively and a polynomial link of n to m is allowed in R while *Shin et al* teaches,

- determining whether or not an end condition of description defined in the epistemological ground is satisfied (Figs. 1, 11, 13-15; column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")
- repeating (Figs. 1, 11, 13-15; column 15, line 67, "the following process operation is repeated from"; column 16, lines 1-6, "I=1 to H. As to all ... multiplication of matrixes") the inputting and analyzing steps until the end condition is determined to be satisfied, (column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")
- automatically satisfying predetermined constraint conditions (column 7, lines 7-24, "according to the ... columns are allocated")

Altschuler et al teaches,

- characterizing (column 48, lines 33-37, "a semantic label ... current, near-by labels") an E-R model, wherein E and R of the E-R model (column 13, lines 33-40, "all data is ... entity relationship diagrams") are related to activity and

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dependence relationship respectively (column 1, lines 61-67, "These hyper-text links ... for example by"; column 2, lines 1-3, "clicking a mouse ... to the user"; column 5, lines 12-27, "Without any semantic ... interpreting semantic relationships") and a polynomial (column 24, lines 47-67, "Semantic data may ... isomorphism algorithms exist") link of n to m is allowed in R (column 18, lines 23-40, "To appreciate the ... using k relationship links"; column 20, lines 64-67, "One of the ... and destinations. Recall"; column 21, lines 1-5, "from §4.2.4 above that ... conceptually complete concepts"; column 35, lines 1-9, "1. η is a frontier link ... the in-links of N_2 "; column 35, lines 15-23, "The following method ... N, G, L ")

Motivation – The portions of the claimed method would have been a highly desirable feature in this art for

- Calculating optimum layout and parameter values (*Shin et al*, column 11, lines 26-32, "The optimum layout ... layout it produced")
- Reducing lattice size and preserving inherent entity relationships (*Altschuler et al*, column 21, lines 8-13, "Since semantic modeling ... relationships among entities")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Warren et al* as taught by *Shin et al* and *Altschuler et al* for the purpose of calculating optimum layout and parameter values as well as reducing lattice size and preserving inherent entity relationships.

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Regarding claims 16-21, 25:

Claims 16-21 and 25 are rejected for being dependent on the above rejected independent claim 15.

Regarding claim 27:

Warren et al teaches,

- inputting (Abstract, "Intelligent browsing through ... the one component"; Figs. 3, 10) a definition (column 10, lines 9-29, "The Publisher is ... with the database"; column 13, lines 49-67, "Plate Definitions Each ... user might read"; column 14, lines 1-3, "The format for ... user may click") of the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details") for classifying the process (column 7, lines 48-67, "The titles 100 on ... deeper levels in the"; column 8, lines 1-8, "open-book window. Index tabs ... in greater detail below"), wherein the epistemological grounds includes information concerning definitions of the activity, the resource (Figs. 2, 6, 11, 15; column 11, lines 6-14, "the ESC contains software ... to the user"; column 11, lines 31-67, "The system of FIG. 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012") and the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate")

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- analyzing (Figs. 3, 10, 14; column 11, lines 31-49, "The system of FIG. 3 ... to the analysis subsystem 1012"; column 13, lines 1-14, "The Software Engineering Analysis ... central tool base") and describing the process (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer") from attributes (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-"; column 4, lines 1-8, "ware component is ... of each tray) of the activities (Figs. 2, 11; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), attributes of the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate"), and attributes of the resource (Figs. 6, 15; column 11, lines 6-14, "the ESC contains software ... to the user") of the process based on the defined (column 10, lines 9-29, "The Publisher is ... with the database") epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details")

- classifying (column 7, lines 48-67, "The titles 100 on ... deeper levels in the"; column 8, lines 1-8, "open-book window. Index tabs ... in greater detail below") the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details") according to various classification structures (column 10, lines 9-29, "The Publisher is ... with the database") including meaningful abstract and concrete (1s-a) relationship (column 13, lines 29-39,

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"There are various ... and system utilities"), inclusion (Part-of) (column 3, lines 32-39, "If we can ... urge to publish") relationship indicating composition (column 8, lines 9-20, "Eventually, the user ... by the ESC")

- the classification structures as attributes (column 10, lines 9-29, "The Publisher is ... with the database") of a global (Fig. 13; column 12, lines 61-67, "When a user's ... local browser sub-system 1006") epistemological ground (column 6, lines 39-55, "We choose the metaphor ... without learning the details")

However, *Warren et al* doesn't explicitly teach end conditions, managing cluster relationship proper to each field or characterizing an E-R model, wherein E and R of the E-R model are related to activity and dependence relationship respectively and a polynomial link of n to m is allowed in R while *Shin et al* teaches,

- determining whether or not an end condition of description defined in the epistemological ground is satisfied (Figs. 1, 11, 13-15; column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")

- repeating (Figs. 1, 11, 13-15; column 15, line 67, "the following process operation is repeated from"; column 16, lines 1-6, "I=1 to H. As to all ... multiplication of matrixes") the inputting and analyzing steps until the end condition is determined to be satisfied, (column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")

Altschuler et al teaches,

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- managing cluster relationship (Abstract, "A pattern lattice ... is also described") proper (column 19, lines 38-46, "More specifically, semantic ... proper semantic data types") to each field (column 4, lines 2-10, "arranging information in a ... utilities are needed")

- characterizing (column 48, lines 33-37, "a semantic label ... current, near-by labels") an E-R model, wherein E and R of the E-R model (column 13, lines 33-40, "all data is ... entity relationship diagrams") are related to activity and dependence relationship respectively (column 1, lines 61-67, "These hyper-text links ... for example by"; column 2, lines 1-3, "clicking a mouse ... to the user"; column 5, lines 12-27, "Without any semantic ... interpreting semantic relationships") and a polynomial (column 24, lines 47-67, "Semantic data may ... isomorphism algorithms exist") link of n to m is allowed in R (column 18, lines 23-40, "To appreciate the ... using k relationship links"; column 20, lines 64-67, "One of the ... and destinations. Recall"; column 21, lines 1-5, "from §4.2.4 above that ... conceptually complete concepts"; column 35, lines 1-9, "1. η is a frontier link ... the in-links of N_2 "; column 35, lines 15-23, "The following method ... N, G, L ")

Motivation – The portions of the claimed method would have been a highly desirable feature in this art for

- Calculating optimum layout and parameter values (*Shin et al*, column 11, lines 26-32, "The optimum layout ... layout it produced")

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- Reducing lattice size and preserving inherent entity relationships
(*Altschuler et al*, column 21, lines 8-13, "Since semantic modeling ...
relationships among entities")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Warren et al* as taught by *Shin et al* and *Altschuler et al* for the purpose of calculating optimum layout and parameter values as well as reducing lattice size and preserving inherent entity relationships.

Regarding claim 28:

Warren et al teaches,

- inputting (Abstract, "Intelligent browsing through ... the one component"; Figs. 3, 10) a definition (column 10, lines 9-29, "The Publisher is ... with the database"; column 13, lines 49-67, "Plate Definitions Each ... user might read"; column 14, lines 1-3, "The format for ... user may click") of the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details") for classifying the process (column 7, lines 48-67, "The titles 100 on ... deeper levels in the"; column 8, lines 1-8, "open-book window. Index tabs ... in greater detail below"), wherein the epistemological grounds includes information concerning definitions of the activity, the resource (Figs. 2, 6, 11, 15; column 11, lines 6-14, "the ESC contains software ... to the user"; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012") and the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the

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invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate")

- analyzing (Figs. 3, 10, 14; column 11, lines 31-49, "The system of FIG. 3 ... to the analysis subsystem 1012"; column 13, lines 1-14, "The Software Engineering Analysis ... central tool base") and describing the process (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer") from attributes (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-"; column 4, lines 1-8, "ware component is ... of each tray) of the activities (Figs. 2, 11; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), attributes of the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate"), and attributes of the resource (Figs. 6, 15; column 11, lines 6-14, "the ESC contains software ... to the user") of the process based on the defined (column 10, lines 9-29, "The Publisher is ... with the database") epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details")

- classifying (column 7, lines 48-67, "The titles 100 on ... deeper levels in the"; column 8, lines 1-8, "open-book window. Index tabs ... in greater detail below")

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the four components of the activity (Figs. 2, 11; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate"), the resource (Figs. 6, 15; column 11, lines 6-14, "the ESC contains software ... to the user"), and the epistemological ground (column 6, lines 39-55, "We choose the metaphor ... without learning the details") according to various classification structures (column 10, lines 9-29, "The Publisher is ... with the database") including history information (Figs. 2, 7-9; column 8, lines 53-55, "The history list 700 ... far taken him") of creation histories (column 4, lines 32-36, "ESC permits an ... the ESC library"), change histories (column 11, lines 6-14, "the ESC contains ... to the user") and reference histories (column 4, lines 20-21, "Using this scheme ... the developer's program") - managing (column 12, lines 37-45, "The user 1250 is ... and assesses productivity") the classification structures as attributes (column 10, lines 9-29, "The Publisher is ... with the database") of the epistemological ground (column 6, lines 39-55, "We choose the metaphor ... without learning the details") using each component

However, *Warren et al* doesn't explicitly teach end conditions, managing cluster relationship proper to each field or characterizing an E-R model, wherein E and R

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of the E-R model are related to activity and dependence relationship respectively and a polynomial link of n to m is allowed in R while *Shin et al* teaches,

- determining whether or not an end condition of description defined in the epistemological ground is satisfied (Figs. 1, 11, 13-15; column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")

- repeating (Figs. 1, 11, 13-15; column 15, line 67, "the following process operation is repeated from"; column 16, lines 1-6, "I=1 to H. As to all ... multiplication of matrixes") the inputting and analyzing steps until the end condition is determined to be satisfied, (column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")

Altschuler et al teaches,

- managing cluster relationship (Abstract, "A pattern lattice ... is also described") proper (column 19, lines 38-46, "More specifically, semantic ... proper semantic data types") to each field (column 4, lines 2-10, "arranging information in a ... utilities are needed")

- characterizing (column 48, lines 33-37, "a semantic label ... current, near-by labels") an E-R model, wherein E and R of the E-R model (column 13, lines 33-40, "all data is ... entity relationship diagrams") are related to activity and dependence relationship respectively (column 1, lines 61-67, "These hyper-text links ... for example by"; column 2, lines 1-3, "clicking a mouse ... to the user"; column 5, lines 12-27, "Without any semantic ... interpreting semantic

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relationships") and a polynomial (column 24, lines 47-67, "Semantic data may ... isomorphism algorithms exist") link of n to m is allowed in R (column 18, lines 23-40, "To appreciate the ... using k relationship links"; column 20, lines 64-67, "One of the ... and destinations. Recall"; column 21, lines 1-5, "from §4.2.4 above that ... conceptually complete concepts"; column 35, lines 1-9, "1. η is a frontier link ... the in-links of N_2 "; column 35, lines 15-23, "The following method ... N, G, L ") - creation histories, change histories, reference (column 4, lines 44-51, "Information may be ... the various information") histories, and deletion histories (column 13, lines 12-21, "Results returned from ... accessing usage data"; column 36, lines 29-44, "FIG. 62 illustrates an escape ... operation of N and N_1 ")

Motivation – The portions of the claimed method would have been a highly desirable feature in this art for

- Calculating optimum layout and parameter values (*Shin et al*, column 11, lines 26-32, "The optimum layout ... layout it produced")
- Reducing lattice size and preserving inherent entity relationships (*Altschuler et al*, column 21, lines 8-13, "Since semantic modeling ... relationships among entities")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Warren et al* as taught by *Shin et al* and *Altschuler et al* for the purpose of calculating optimum layout and parameter values as well as reducing lattice size and preserving inherent entity relationships.

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Regarding claim 29:*Warren et al* teaches,

- inputting (Abstract, "Intelligent browsing through ... the one component"; Figs. 3, 10) a definition (column 10, lines 9-29, "The Publisher is ... with the database"; column 13, lines 49-67, "Plate Definitions Each ... user might read"; column 14, lines 1-3, "The format for ... user may click") of the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details") for classifying the process (column 7, lines 48-67, "The titles 100 on ... deeper levels in the"; column 8, lines 1-8, "open-book window. Index tabs ... in greater detail below"), wherein the epistemological grounds includes information concerning definitions of the activity, the resource (Figs. 2, 6, 11, 15; column 11, lines 6-14, "the ESC contains software ... to the user"; column 11, lines 31-67, "The system of FIG. 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012") and the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate")
- analyzing (Figs. 3, 10, 14; column 11, lines 31-49, "The system of FIG. 3 ... to the analysis subsystem 1012"; column 13, lines 1-14, "The Software Engineering Analysis ... central tool base") and describing the process (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer") from attributes (Figs. 3,

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10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-"; column 4, lines 1-8, "ware component is ... of each tray) of the activities (Figs. 2, 11; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), attributes of the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate"), and attributes of the resource (Figs. 6, 15; column 11, lines 6-14, "the ESC contains software ... to the user") of the process based on the defined (column 10, lines 9-29, "The Publisher is ... with the database") epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details")

- managing (column 12, lines 37-45, "The user 1250 is ... and assesses productivity") the classification structures as attributes (column 10, lines 9-29, "The Publisher is ... with the database") of the epistemological ground (column 6, lines 39-55, "We choose the metaphor ... without learning the details") using each components

However, *Warren et al* doesn't explicitly teach classifying characteristic processes used in specific patterns, such as those frequently used or the well-worn means most frequently used under a specific condition, according to various classification structures including the cluster relationship, end conditions or characterizing an E-R model, wherein E and R of the E-R model are related to

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activity and dependence relationship respectively and a polynomial link of n to m is allowed in R while *Shin et al* teaches,

- determining whether or not an end condition of description defined in the epistemological ground is satisfied (Figs. 1, 11, 13-15; column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")
- repeating (Figs. 1, 11, 13-15; column 15, line 67, "the following process operation is repeated from"; column 16, lines 1-6, "I=1 to H. As to all ... multiplication of matrixes") the inputting and analyzing steps until the end condition is determined to be satisfied, (column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")

Altschuler et al teaches,

- characterizing (column 48, lines 33-37, "a semantic label ... current, near-by labels") an E-R model, wherein E and R of the E-R model (column 13, lines 33-40, "all data is ... entity relationship diagrams") are related to activity and dependence relationship respectively (column 1, lines 61-67, "These hyper-text links ... for example by"; column 2, lines 1-3, "clicking a mouse ... to the user"; column 5, lines 12-27, "Without any semantic ... interpreting semantic relationships") and a polynomial (column 24, lines 47-67, "Semantic data may ... isomorphism algorithms exist") link of n to m is allowed in R (column 18, lines 23-40, "To appreciate the ... using k relationship links"; column 20, lines 64-67, "One of the ... and destinations. Recall"; column 21, lines 1-5, "from §4.2.4 above that

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... conceptually complete concepts"; column 35, lines 1-9, "1. η is a frontier link ... the in-links of N_2 "; column 35, lines 15-23, "The following method ... N , G , L ") - classifying characteristic processes used in specific patterns, such as those frequently used or the well-worn means most frequently used under a specific condition (column 48, lines 15-37, "Referring to FIG. 39, first ... the common subpattern"), according to various classification structures including the cluster relationship (Abstract, "A pattern lattice ... is also described")

Motivation – The portions of the claimed method would have been a highly desirable feature in this art for

- Calculating optimum layout and parameter values (*Shin et al*, column 11, lines 26-32, "The optimum layout ... layout it produced")
- Reducing lattice size and preserving inherent entity relationships (*Altschuler et al*, column 21, lines 8-13, "Since semantic modeling ... relationships among entities")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Warren et al* as taught by *Shin et al* and *Altschuler et al* for the purpose of calculating optimum layout and parameter values as well as reducing lattice size and preserving inherent entity relationships.

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Regarding claim 30:*Warren et al* teaches,

- input means for inputting (Abstract, "Intelligent browsing through ... the one component"; Figs. 3, 10) the process description data; retrieval means for retrieving the process description data (Fig. 6; column 2, lines 37-55, "It is the ... for any platforms, etc."); edit means for editing the process description data (column 4, lines 46-49, "The group two ... and system utilities")

- inputting (Abstract, "Intelligent browsing through ... the one component"; Figs. 3, 10) a definition (column 10, lines 9-29, "The Publisher is ... with the database"; column 13, lines 49-67, "Plate Definitions Each ... user might read"; column 14, lines 1-3, "The format for ... user may click") of the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details") for classifying the process (column 7, lines 48-67, "The titles 100 on ... deeper levels in the"; column 8, lines 1-8, "open-book window. Index tabs ... in greater detail below"), wherein the epistemological grounds includes information concerning definitions of the activity, the resource (Figs. 2, 6, 11, 15; column 11, lines 6-14, "the ESC contains software ... to the user"; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012") and the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external

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dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate")

- analyzing (Figs. 3, 10, 14; column 11, lines 31-49, "The system of FIG. 3 ... to the analysis subsystem 1012"; column 13, lines 1-14, "The Software Engineering Analysis ... central tool base") and describing the process (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer") from attributes (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-"; column 4, lines 1-8, "ware component is ... of each tray) of the activities (Figs. 2, 11; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), attributes of the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate"), and attributes of the resource (Figs. 6, 15; column 11, lines 6-14, "the ESC contains software ... to the user") of the process based on the defined (column 10, lines 9-29, "The Publisher is ... with the database") epistemological ground (column 6, lines 39-55, "We choose the metaphor ... without learning the details")

- display means for displaying the process description data (Abstract, "Intelligent browsing through ... the one component"; Figs. 3, 10)

- storage means for storing the process description data (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-")

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However, *Warren et al* doesn't explicitly teach end conditions, repeating, E-R models or a polynomial link of n to m is allowed in R while *Shin et al* teaches, - determining whether or not an end condition of description defined in the epistemological ground is satisfied, and repeating (column 15, line 67, "the following process operation is repeated from"; column 16, lines 1-6, "I=1 to H. As to all ... multiplication of matrixes") the inputting and analyzing steps until the end condition is determined to be satisfied (Figs. 1, 11, 13-15; column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")

Altschuler et al teaches,

- database means for (Fig. 1A-B; column 2, lines 53-64, "in the context ... in the content") managing the process description data (Abstract, "A pattern lattice ... is also described"), characterizing (column 48, lines 33-37, "a semantic label ... current, near-by labels") an E-R model, wherein E and R of the E-R model (column 13, lines 33-40, "all data is ... entity relationship diagrams") are related to activity and dependence relationship respectively (column 1, lines 61-67, "These hyper-text links ... for example by"; column 2, lines 1-3, "clicking a mouse ... to the user"; column 5, lines 12-27, "Without any semantic ... interpreting semantic relationships") and a polynomial (column 24, lines 47-67, "Semantic data may ... isomorphism algorithms exist") link of n to m is allowed in R (column 18, lines 23-40, "To appreciate the ... using k relationship links"; column 20, lines 64-67, "One of the ... and destinations. Recall"; column 21, lines 1-5, "from §4.2.4 above that ... conceptually complete concepts"; column 35, lines 1-9, "1.

η is a frontier link ... the in-links of N_2 "; column 35, lines 15-23, "The following method ... N, G, L")

Motivation – The portions of the claimed apparatus would have been a highly desirable feature in this art for

- Calculating optimum layout and parameter values (*Shin et al*, column 11, lines 26-32, "The optimum layout ... layout it produced")
- Reducing lattice size and preserving inherent entity relationships (*Altschuler et al*, column 21, lines 8-13, "Since semantic modeling ... relationships among entities")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Warren et al* as taught by *Shin et al* and *Altschuler et al* for the purpose of calculating optimum layout and parameter values as well as reducing lattice size and preserving inherent entity relationships.

Regarding claim 31:

Warren et al teaches,

- input means for inputting the process description data (Abstract, "Intelligent browsing through ... the one component"; Figs. 3, 10)
- retrieval means for retrieving the process description data (Figs. 3, 6, 10; column 2, lines 37-55, "It is the ... for any platforms, etc.")
- edit means for editing the process description data (column 4, lines 46-49, "The group two ... and system utilities")

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- inputting (Abstract, "Intelligent browsing through ... the one component"; Figs. 3, 10) a definition (column 10, lines 9-29, "The Publisher is ... with the database"; column 13, lines 49-67, "Plate Definitions Each ... user might read"; column 14, lines 1-3, "The format for ... user may click") of the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details") for classifying the process (column 7, lines 48-67, "The titles 100 on ... deeper levels in the"; column 8, lines 1-8, "open-book window. Index tabs ... in greater detail below"), wherein the epistemological grounds includes information concerning definitions of the activity, the resource (Figs. 2, 6, 11, 15; column 11, lines 6-14, "the ESC contains software ... to the user"; column 11, lines 31-67, "The system of FIG. 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012") and the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate")

- analyzing (Figs. 3, 10, 14; column 11, lines 31-49, "The system of FIG. 3 ... to the analysis subsystem 1012"; column 13, lines 1-14, "The Software Engineering Analysis ... central tool base") and describing the process (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer") from attributes (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-"; column 4, lines 1-8, "ware component is ... of each tray) of the activities (Figs. 2,

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11; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), attributes of the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate"), and attributes of the resource (Figs. 6, 15; column 11, lines 6-14, "the ESC contains software ... to the user") of the process based on the defined (column 10, lines 9-29, "The Publisher is ... with the database") epistemological ground (column 6, lines 39-55, "We choose the metaphor ... without learning the details")

- display means for displaying the process description data (Abstract, "Intelligent browsing through ... the one component"; Figs. 3, 10)

- storage means for storing the process description data (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-")

- retrieving specific information (Figs. 3, 6, 10; column 2, lines 37-55, "It is the ... for any platforms, etc."), similar information (column 17, lines 21-32, "Part Plate: The ... cut and-paste environment"), peripheral information (column 15, lines 18-20, "I/O Name Field: ... current component manipulates"), target information (column 15, lines 32-50, "H/W Kind Field: ... the component operational") from the various classification structures (column 10, lines 9-29, "The Publisher is ... with the database") with the types, values, or their combinations contained in the attribute information of the activity, the dependence relationship, the resource

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(Figs. 2, 6, 11, 15; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 11, lines 6-14, "the ESC contains software ... to the user"; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate"), and the epistemological ground (column 6, lines 39-55, "We choose the metaphor ... without learning the details") as retrieval keys (column 2, lines 65-67, "Retrieving is facilitated ... by actually computing"; column 3, lines 1-2, "closed sets of ... or a component")

However, *Warren et al* doesn't explicitly teach end conditions, repeating, E-R models or a polynomial link of n to m is allowed in R while *Shin et al* teaches, - determining whether or not an end condition of description defined in the epistemological ground is satisfied, and repeating (column 15, line 67, "the following process operation is repeated from"; column 16, lines 1-6, " $l=1$ to H . As to all ... multiplication of matrixes") the inputting and analyzing steps until the end condition is determined to be satisfied (Figs. 1, 11, 13-15; column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")

Altschuler et al teaches,

- database means for (Fig. 1A-B; column 2, lines 53-64, "in the context ... in the content") managing the process description data (Abstract, "A pattern lattice ... is

also described”), characterizing (column 48, lines 33-37, “a semantic label ... current, near-by labels”) an E-R model, wherein E and R of the E-R model (column 13, lines 33-40, “all data is ... entity relationship diagrams”) are related to activity and dependence relationship respectively (column 1, lines 61-67, “These hyper-text links ... for example by”; column 2, lines 1-3, “clicking a mouse ... to the user”; column 5, lines 12-27, “Without any semantic ... interpreting semantic relationships”) and a polynomial (column 24, lines 47-67, “Semantic data may ... isomorphism algorithms exist”) link of n to m is allowed in R (column 18, lines 23-40, “To appreciate the ... using k relationship links”; column 20, lines 64-67, “One of the ... and destinations. Recall”; column 21, lines 1-5, “from §4.2.4 above that ... conceptually complete concepts”; column 35, lines 1-9, “1. η is a frontier link ... the in-links of N_2 ”; column 35, lines 15-23, “The following method ... N, G, L ”)

Motivation – The portions of the claimed method would have been a highly desirable feature in this art for

- Calculating optimum layout and parameter values (*Shin et al*, column 11, lines 26-32, “The optimum layout ... layout it produced”)
- Reducing lattice size and preserving inherent entity relationships (*Altschuler et al*, column 21, lines 8-13, “Since semantic modeling ... relationships among entities”)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Warren et al* as taught by *Shin et al* and

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Altschuler et al for the purpose of calculating optimum layout and parameter values as well as reducing lattice size and preserving inherent entity relationships.

Regarding claims 35:

Claim 35 is rejected for being dependent on the above rejected independent claim 31.

Claims 26 and 36-37 are rejected under 35 U.S.C. 103(a) as being obvious over *Warren et al* in view of *Altschuler et al*.

Regarding claim 26:

Warren et al teaches,

- classifying (column 7, lines 48-67, "The titles 100 on ... deeper levels in the"; column 8, lines 1-8, "open-book window. Index tabs ... in greater detail below") the three components of the activity (Figs. 2, 11; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), the resource (Figs. 6, 15; column 11, lines 6-14, "the ESC contains software ... to the user"), and the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-39, "Once the user ... and system utilities"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate") according to various classification structures (column 10, lines 9-29, "The Publisher is ... with the database") including meaningful abstract and

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concrete (Is-a) relationship inclusion (Part-of) (column 3, lines 32-39, "If we can ... urge to publish") relationship indicating composition (column 8, lines 9-20, "Eventually, the user ...by the ESC")

- the classification structures as attributes (column 10, lines 9-29, "The Publisher is ... with the database") of the epistemological ground (column 6, lines 39-55, "We choose the metaphor ... without learning the details") using each component

- wherein the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details") includes information concerning definitions (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer"; column 10, lines 9-29, "The Publisher is ... with the database") of the activity, the resource (Figs. 2, 6, 11, 15; column 11, lines 6-14, "the ESC contains software ... to the user"; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), and the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate")

However, *Warren et al* doesn't explicitly teach managing cluster relationship proper to each field while *Altschuler et al* teaches,

- managing cluster relationship (Abstract, "A pattern lattice ... is also described") proper (column 19, lines 38-46, "More specifically, semantic ... proper semantic

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data types”) to each field (column 4, lines 2-10, “arranging information in a ... utilities are needed”)

Motivation – The portions of the claimed method would have been a highly desirable feature in this art for

- Reducing lattice size and preserving inherent entity relationships
(*Altschuler et al*, column 21, lines 8-13, “Since semantic modeling ... relationships among entities”)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Warren et al* as taught by *Altschuler et al* for the purpose of reducing lattice size and preserving inherent entity relationships.

Regarding claim 36:

Warren et al teaches,

- representing a background (column 7, lines 35-40, “The bookshelf window ... software component arises”) area (claims 3, 16) in a background color (column 9, lines 17-28, “The Searcher allows ... to choose from”; column 12, lines 17-18, “The graphical browser 1200 ... window graphical hypertext”) or by area contour lines (Figs. 2, 6; column 8, lines 46-52, “The graph 600 of ... or browse activity”; column 17, lines 21-32, “Part Plate: The ... cut and-paste environment”) as the epistemological ground (column 6, lines 39-55, “We choose the metaphor ... without learning the details”)
- wherein the epistemological grounds (column 6, lines 39-55, “We choose the metaphor ... without learning the details”) includes information concerning

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definitions (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer"; column 10, lines 9-29, "The Publisher is ... with the database") of the activity, resource (Figs. 2, 6, 11, 15; column 11, lines 6-14, "the ESC contains software ... to the user"; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), and the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate")

However, *Warren et al* doesn't explicitly teach including an expanded E-R model, wherein E (entity) and R (relationship) of an E-R model are related to activity and dependence relationship respectively and that a polynomial link of n to m is allowed in R, and a model represented by the expanded E-R model while

Altschuler et al teaches,

- including an expanded (column 33, lines 13-58, "The following are ... the lattice expansion") E-R model, wherein E (entity) and R (relationship) of an E-R model (column 13, lines 33-40, "all data is ... entity relationship diagrams") are related to activity and dependence relationship respectively (column 1, lines 61-67, "These hyper-text links ... for example by"; column 2, lines 1-3, "clicking a mouse ... to the user"; column 5, lines 12-27, "Without any semantic ... interpreting semantic relationships") and that a polynomial (column 24, lines 47-67, "Semantic data may ... isomorphism algorithms exist") link of n to m is allowed in

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R (column 18, lines 23-40, "To appreciate the ... using k relationship links"; column 20, lines 64-67, "One of the ... and destinations. Recall"; column 21, lines 1-5, "from §4.2.4 above that ... conceptually complete concepts"; column 35, lines 1-9, "1. η is a frontier link ... the in-links of N_2 "; column 35, lines 15-23, "The following method ... N, G, L"), and a model represented by the expanded E-R model (Figs. 56-57, 62; column 36, lines 29-44, "FIG. 62 illustrates an ... operation of N and N_1 ")

Motivation – The portions of the claimed method would have been a highly desirable feature in this art for

- Reducing lattice size and preserving inherent entity relationships
(*Altschuler et al*, column 21, lines 8-13, "Since semantic modeling ... relationships among entities")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Warren et al* as taught by *Altschuler et al* for the purpose of reducing lattice size and preserving inherent entity relationships.

Regarding claim 37:

Warren et al teaches,

- representing a background (column 7, lines 35-40, "The bookshelf window ... software component arises") area (claims 3, 16) related to classification (column 7, lines 48-67, "The titles 100 on ... deeper levels in the"; column 8, lines 1-8, "open-book window. Index tabs ... in greater detail below") target (column 15,

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lines 32-50, "H/W Kind Field: ... the component operational") and abstract-concrete (Is-a) relationship (column 13, lines 29-39, "There are various ... and system utilities"), inclusion (Part-of) (column 3, lines 32-39, "If we can ... urge to publish") relationship and a classification structure (column 10, lines 9-29, "The Publisher is ... with the database") represented by an epistemological ground (column 6, lines 39-55, "We choose the metaphor ... without learning the details") - wherein the epistemological ground (column 6, lines 39-55, "We choose the metaphor ... without learning the details") includes definitions (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer"; column 10, lines 9-29, "The Publisher is ... with the database") of the activity, the resource (Figs. 2, 6, 11, 15; column 11, lines 6-14, "the ESC contains software ... to the user"; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012") and the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate")

However, *Warren et al* doesn't explicitly teach including an expanded E-R model characterized in that E (entity) and R (relationship) of an E-R model are related to cluster relationship and represented by the expanded E-R model while *Altschuler et al* teaches,

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- including an expanded (column 33, lines 13-58, "The following are ... the lattice expansion") E-R model characterized in that E (entity) and R (relationship) of an E-R model (column 13, lines 33-40, "all data is ... entity relationship diagrams") are related to cluster relationship (Abstract, "A pattern lattice ... is also described") and represented by the expanded E-R model (Figs. 56-57, 62; column 36, lines 29-44, "FIG. 62 illustrates an ... operation of N and N₁")

Motivation – The portions of the claimed method would have been a highly desirable feature in this art for

- Reducing lattice size and preserving inherent entity relationships
(*Altschuler et al*, column 21, lines 8-13, "Since semantic modeling ... relationships among entities")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Warren et al* as taught by *Altschuler et al* for the purpose of reducing lattice size and preserving inherent entity relationships.

Claim 32 is rejected under 35 U.S.C. 103(a) as being obvious over *Warren et al* in view of *Shin et al*.

Regarding claim 32:

Warren et al teaches,

- inputting (Abstract, "Intelligent browsing through ... the one component"; Figs. 3, 10) a definition (column 10, lines 9-29, "The Publisher is ... with the database"; column 13, lines 49-67, "Plate Definitions Each ... user might read"; column 14,

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lines 1-3, "The format for ... user may click") of an epistemological ground (column 6, lines 39-55, "We choose the metaphor ... without learning the details") for classifying the process (column 7, lines 48-67, "The titles 100 on ... deeper levels in the"; column 8, lines 1-8, "open-book window. Index tabs ... in greater detail below"), wherein the epistemological grounds includes information concerning definitions of the activity, the resource (Figs. 2, 6, 11, 15; column 11, lines 6-14, "the ESC contains software ... to the user"; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012") and the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate")

- analyzing (Figs. 3, 10, 14; column 11, lines 31-49, "The system of FIG. 3 ... to the analysis subsystem 1012"; column 13, lines 1-14, "The Software Engineering Analysis ... central tool base") and describing the process (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer") from the activity (Figs. 2, 11; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external

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dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate"), and resource (Figs. 6, 15; column 11, lines 6-14, "the ESC contains software ... to the user") of the process based on the defined (column 10, lines 9-29, "The Publisher is ... with the database") epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details")

However, *Warren et al* doesn't explicitly teach end conditions while *Shin et al* teaches,

- determining whether or not an end condition of description defined in the epistemological ground is satisfied (Figs. 1, 11, 13-15; column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")

- repeating (column 15, line 67, "the following process operation is repeated from"; column 16, lines 1-6, "I=1 to H. As to all ... multiplication of matrixes") the inputting and analyzing steps until it is determined that the end condition is satisfied (column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")

Motivation – The portions of the claimed method would have been a highly desirable feature in this art for

- Calculating optimum layout and parameter values (*Shin et al*, column 11, lines 26-32, "The optimum layout ... layout it produced")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Warren et al* as taught by *Shin et al* for the purpose of calculating optimum layout and parameter values.

Claims 33-34 are rejected under 35 U.S.C. 103(a) as being obvious over *Warren et al* in view of *Shin et al* in view of *Altschuler et al* and in further view of *Burt* USPN 4,595,982 "Expert system and method for making decisions in accordance with the decisions of a mentor" (June 17, 1986).

Regarding claim 33:

Warren et al teaches,

- inputting (Abstract, "Intelligent browsing through ... the one component"; Figs. 3, 10) a definition (column 10, lines 9-29, "The Publisher is ... with the database"; column 13, lines 49-67, "Plate Definitions Each ... user might read"; column 14, lines 1-3, "The format for ... user may click") of the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details") for classifying the process (column 7, lines 48-67, "The titles 100 on ... deeper levels in the"; column 8, lines 1-8, "open-book window. Index tabs ... in greater detail below"), wherein the epistemological grounds includes information concerning definitions of the activity, the resource (Figs. 2, 6, 11, 15; column 11, lines 6-14, "the ESC contains software ... to the user"; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012") and the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external

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dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate")

- analyzing (Figs. 3, 10, 14; column 11, lines 31-49, "The system of FIG. 3 ... to the analysis subsystem 1012"; column 13, lines 1-14, "The Software Engineering Analysis ... central tool base") and describing the process (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer") from attributes (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-"; column 4, lines 1-8, "ware component is ... of each tray) of the activities (Figs. 2, 11; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), attributes of the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate"), and attributes of the resource (Figs. 6, 15; column 11, lines 6-14, "the ESC contains software ... to the user") of the process based on the defined (column 10, lines 9-29, "The Publisher is ... with the database") epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details")

- describing the process (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer"), if the epistemological ground (column 6, lines 39-55, "We choose the metaphor ... without learning the details") concerning a domain of the process (Fig. 6; column 2, lines 37-55, "It is the ... for any

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platforms, etc.") to be analyzed (Figs. 3, 10, 14; column 11, lines 31-49, "The system of FIG. 3 ... to the analysis subsystem 1012"; column 13, lines 1-14, "The Software Engineering Analysis ... central tool base") already exists (column 13, lines 60-64, "Data Plate: This ... if it exists"), while the epistemological ground is changed (column 3, lines 41-44, "The foreseeable effects ... attempted before reinvention"), whereby the process analysis is advanced (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer")

However, *Warren et al* doesn't explicitly teach end conditions, characterizing an E-R model, wherein E and R of the E-R model are related to activity and dependence relationship respectively and a polynomial link of n to m is allowed in R or the epistemological ground is changed gradually based on the history of analysis conducted in the past using the epistemological ground while *Shin et al* teaches,

- determining whether or not an end condition of description defined in the epistemological ground is satisfied (Figs. 1, 11, 13-15; column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")
- repeating (Figs. 1, 11, 13-15; column 15, line 67, "the following process operation is repeated from"; column 16, lines 1-6, "I=1 to H. As to all ... multiplication of matrixes") the inputting and analyzing steps until the end condition is determined to be satisfied, (column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")

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Altschuler et al teaches,

- characterizing (column 48, lines 33-37, "a semantic label ... current, near-by labels") an E-R model, wherein E and R of the E-R model (column 13, lines 33-40, "all data is ... entity relationship diagrams") are related to activity and dependence relationship respectively (column 1, lines 61-67, "These hyper-text links ... for example by"; column 2, lines 1-3, "clicking a mouse ... to the user"; column 5, lines 12-27, "Without any semantic ... interpreting semantic relationships") and a polynomial (column 24, lines 47-67, "Semantic data may ... isomorphism algorithms exist") link of n to m is allowed in R (column 18, lines 23-40, "To appreciate the ... using k relationship links"; column 20, lines 64-67, "One of the ... and destinations. Recall"; column 21, lines 1-5, "from §4.2.4 above that ... conceptually complete concepts"; column 35, lines 1-9, "1. η is a frontier link ... the in-links of N_2 "; column 35, lines 15-23, "The following method ... N, G, L ")

Burt teaches,

- the epistemological ground is changed gradually based on the history of analysis conducted in the past using the epistemological ground (column 6, lines 11-27, "The ANALYSIS module ... each data point")

Motivation – The portions of the claimed method would have been a highly desirable feature in this art for

- Calculating optimum layout and parameter values (*Shin et al*, column 11, lines 26-32, "The optimum layout ... layout it produced")

- Reducing lattice size and preserving inherent entity relationships (*Altschuler et al*, column 21, lines 8-13, "Since semantic modeling ... relationships among entities")
- Measuring the logical significance of the information it learns to use in dealing with a specific problem (*Burt*, column 1, lines 23-30, "None of these ... a specific problem")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Warren et al* as taught by *Shin et al*, *Altschuler et al* and *Burt* for the purpose of calculating optimum layout parameter values, reducing lattice size, preserving inherent entity relationships and measuring the logical significance of the information it learns to use in dealing with a specific problem.

Regarding claim 34:

Warren et al teaches,

- inputting (Abstract, "Intelligent browsing through ... the one component"; Figs. 3, 10) a definition (column 10, lines 9-29, "The Publisher is ... with the database"; column 13, lines 49-67, "Plate Definitions Each ... user might read"; column 14, lines 1-3, "The format for ... user may click") of the epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details") for classifying the process (column 7, lines 48-67, "The titles 100 on ... deeper levels in the"; column 8, lines 1-8, "open-book window. Index tabs ... in greater detail below"), wherein the epistemological grounds includes information concerning definitions of the activity, the resource (Figs. 2, 6, 11, 15; column 11,

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lines 6-14, "the ESC contains software ... to the user"; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012") and the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate")

- analyzing (Figs. 3, 10, 14; column 11, lines 31-49, "The system of FIG. 3 ... to the analysis subsystem 1012"; column 13, lines 1-14, "The Software Engineering Analysis ... central tool base") and describing the process (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer") from attributes (Figs. 3, 10; column 3, lines 61-67, "The invention is a ... tray metaphor, each soft-"; column 4, lines 1-8, "ware component is ... of each tray) of the activities (Figs. 2, 11; column 11, lines 31-67, "The system of FIG., 3 ... to the Maintenance sub-"; column 12, lines 1-3, "system 1008. The interaction ... the analysis subsystem 1012"), attributes of the dependence relationship (Figs. 2, 6; column 5, lines 62-67, "In FIG. 2, the invention ... object oriented database"; column 6, lines 1-18, "In the video ... various software topics"; column 13, lines 16-33, "Once the user ... and external dependencies"; column 17, lines 52-56, "Depends On Button: ... definitionally to operate"), and attributes of the resource (Figs. 6, 15; column 11, lines 6-14, "the ESC contains software ... to the user") of the process based on the defined (column 10, lines 9-29, "The Publisher is ... with the database")

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epistemological grounds (column 6, lines 39-55, "We choose the metaphor ... without learning the details")

- editing (column 4, lines 46-49, "The group two ... and system utilities") the history (Figs. 2, 7-9; column 8, lines 53-55, "The history list 700 ... far taken him") of the epistemological ground (column 6, lines 39-55, "We choose the metaphor ... without learning the details") made in the past as required, if the epistemological ground concerning the process to be analyzed (Figs. 3, 10, 14; column 11, lines 31-49, "The system of FIG. 3 ... to the analysis subsystem 1012"; column 13, lines 1-14, "The Software Engineering Analysis ... central tool base") already exists (column 13, lines 60-64, "Data Plate: This ... if it exists")

- analyzing (Figs. 3, 10, 14; column 11, lines 31-49, "The system of FIG. 3 ... to the analysis subsystem 1012"; column 13, lines 1-14, "The Software Engineering Analysis ... central tool base") and describing the process (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer"), whereby the process analysis is advanced (column 4, lines 50-57, "Future embodiments of ... facilitate technology transfer")

However, *Warren et al* doesn't explicitly teach end conditions, characterizing an E-R model, wherein E and R of the E-R model are related to activity and dependence relationship respectively and a polynomial link of n to m is allowed in R or gradually changing the epistemological ground history while *Shin et al* teaches,

- determining whether or not an end condition of description defined in the epistemological ground is satisfied (Figs. 1, 11, 13-15; column 20, lines 29-42,

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"the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")

- repeating (Figs. 1, 11, 13-15; column 15, line 67, "the following process operation is repeated from"; column 16, lines 1-6, "I=1 to H. As to all ... multiplication of matrixes") the inputting and analyzing steps until the end condition is determined to be satisfied, (column 20, lines 29-42, "the simplex method ... ending condition is checked"; column 27, lines 26-60, "At step S53 ... can be satisfied")

Altschuler et al teaches,

- characterizing (column 48, lines 33-37, "a semantic label ... current, near-by labels") an E-R model, wherein E and R of the E-R model (column 13, lines 33-40, "all data is ... entity relationship diagrams") are related to activity and dependence relationship respectively (column 1, lines 61-67, "These hyper-text links ... for example by"; column 2, lines 1-3, "clicking a mouse ... to the user"; column 5, lines 12-27, "Without any semantic ... interpreting semantic relationships") and a polynomial (column 24, lines 47-67, "Semantic data may ... isomorphism algorithms exist") link of n to m is allowed in R (column 18, lines 23-40, "To appreciate the ... using k relationship links"; column 20, lines 64-67, "One of the ... and destinations. Recall"; column 21, lines 1-5, "from §4.2.4 above that ... conceptually complete concepts"; column 35, lines 1-9, "1. η is a frontier link ... the in-links of N_2 "; column 35, lines 15-23, "The following method ... N, G, L ")

Burt teaches,

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- editing the history of change of the epistemological ground made in the past as required, if the epistemological ground concerning the process to be analyzed already exists (column 6, lines 2-27, "If the file ... each data point")
- retaining gradual change of the epistemological ground in the epistemological ground history as methodology of process analysis (column 6, lines 11-27, "The ANALYSIS module ... each data point")
- analyzing and describing the process following the gradual change of the epistemological ground, whereby the process analysis is advanced (column 6, lines 6-29, "When all data ... device or printer")

Motivation – The portions of the claimed method would have been a highly desirable feature in this art for

- Calculating optimum layout and parameter values (*Shin et al*, column 11, lines 26-32, "The optimum layout ... layout it produced")
- Reducing lattice size and preserving inherent entity relationships (*Altschuler et al*, column 21, lines 8-13, "Since semantic modeling ... relationships among entities")
- Measuring the logical significance of the information it learns to use in dealing with a specific problem (*Burt*, column 1, lines 23-30, "None of these ... a specific problem")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify *Warren et al* as taught by *Shin et al*, *Altschuler et al* and *Burt* for the purpose of calculating optimum layout parameter values, reducing lattice size, preserving inherent entity relationships and

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measuring the logical significance of the information it learns to use in dealing with a specific problem.

RESPONSE TO APPLICANTS' AMENDMENT REMARKS

Applicant(s) argue(s) that this application is in condition for allowance (Amendment REMARKS page 31, paragraph 4).

Applicant's 35 USC 102 argument with respect to claim 26 and 35 USC 103 arguments with respect to claims 1-25 and 27-37 have been considered but are moot in view of the above new ground(s) of rejection.

Information Disclosure Statement

Applicant(s) argue(s) that the date of publication for the Okabe reference is July 5, 1996 (Amendment REMARKS, page 25, paragraph 2).

The Examiner recognizes Okabe's date of publication as July 5, 1996 and withdraws the objection.

Drawings

Applicant(s) argue(s) that paragraphs [0100], [0142] and [0151] have been amended to obviate the objections to the drawings (Amendment REMARKS page 25, paragraph 3).

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The amendments to the specification paragraphs [0100], [0142] and [0151] have been entered and examined. The objections to the drawings in the prior office action are withdrawn.

Specification

Applicant(s) argue(s) that the substitute specification is in compliance with 37 C.F.R. 1.52(a) and (b) and that the amendments and corrections in the substitute specification obviate the objections to items A-F raised in the prior Office Action (Amendment REMARKS page 25, paragraphs 4 and page 26, paragraph 1).

The amendments to the specification paragraphs [0001], [0005-0007], [0013], [0020], [0026], [0028], [0032], [0036-0040], [0042], [0100], [0134], [0142], [0151], [0173] and [0195] have been entered and examined. These corrections obviate the objections to items A-F. However, it is noted that the term beyond fields is present in paragraphs [0001] and [0032] (item C) and paragraphs [0034-0035] are missing from the substitute specification (item E).

Claim Rejections - 35 USC § 101

Applicant(s) argue(s) that the statutory subject matter of claims 1-37 produce a useful, concrete and tangible result (Amendment REMARKS page 26, paragraph 3), claims 36-37 are reduced to a practical application (Amendment REMARKS page 26, paragraph 5) and that there is no basis for the 35 U.S.C.

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101 non-statutory subject matter rejection of claims 1, 7 and 13 (Amendment REMARKS page 27, paragraph 3).

The examiner agrees claims 1-37 comply with 35 U.S.C. 101 and withdraw the rejections.

Claim Rejections - 35 USC § 102

Applicant(s) argue(s) that Malone USPN 5,819,270 fails to disclose or teach all features recited in amended claim 26, specifically an epistemological ground (Amendment REMARKS page 27, paragraph 6).

Applicant's 35 USC 102 arguments with respect to claim 26 have been considered but are moot in view of the above new ground(s) of rejection. The applicants Malone vs. claim 26 arguments are agreed with and the 35 U.S.C. 102(b) rejection is withdrawn.

Claim Rejections - 35 USC § 103

Applicant(s) argue(s) that the cited references (Malone, Orfali, Heichler USPN 4,757,506 and Noik) or combination thereof do not disclose or suggest all of the features recited in claims 1-25 and 27-37 (Amendment REMARKS page 28, paragraphs 3 and 4).

Applicant's 35 USC 103 arguments with respect to claims 1-25 and 27-37 have been considered but are moot in view of the above new ground(s) of rejection. It is agreed that the references cited in the prior Office Actions (Malone, Orfali, Heichler, Nishiya, Noik and Czedo) do not disclose or suggest all

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of the features recited in claims 1-25 and 27-37. However, Warren et al USPN 5,632,022 ("Warren"), Shin et al USPN 5,808,914 ("Shin") and Altschuler et al USPN 6,556,983 ("Altschuler") are cited individually and in combination for explicitly and inherently disclosing the subject matter set forth in the claims by the applicants.

Applicant(s) argue(s) that Malone fails to disclose or teach the feature of determining whether an end condition of description defined in the epistemological grounds has been satisfied as recited in claims 1-3, 15 and 27-34 (Amendment REMARKS page 28, paragraph 5). The Malone's failings arguments are agreed with. However, column 6, lines 39-55 of Warren is cited for disclosing epistemological grounds while Figs. 1, 11, 13-15; column 20, lines 29-42 and column 27, lines 26-60 of Shin are cited for teaching determining whether an end condition of description has been satisfied. Further, column 11, lines 26-32 of Shin provide calculating optimum layout and parameter values as the motivation for combining Shin with Warren.

Applicant(s) argue(s) that the cited combination fails to disclose or suggest the feature that the epistemological ground includes information concerning definitions of the activity, the resource and the dependence relationship, as recited in claims 1-3, 15, 27-34, 36 and 37 (Amendment REMARKS page 28, paragraph 6). The Malone, Orfali, Heichler, Nishiya, Noik and Czedo's failings arguments are agreed with. However, column 6, lines 39-55, column 4, lines 50-57, column 10, lines 9-29, Figs. 2, 6, 11, 15; column 11, lines 6-14, column 11, lines 31-67, column 12, lines 1-3, column 5, lines 62-67, column 6, lines 1-18,

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column 13, lines 16-33 and column 17, lines 52-56 of Warren are cited for explicitly and inherently disclosing the epistemological ground includes information concerning definitions of the activity, the resource and the dependence relationship.

Applicant(s) argue(s) that Orfali fails to make up for the deficiencies of Malone, specifically the feature of repeating the inputting and analyzing steps until the end condition is met as recited in claims 1-3, 15 and 27-34 (Amendment REMARKS page 29, paragraph 2). The Orfali's failings arguments are agreed with. However, Figs. 1, 11, 13-15; column 15, line 67, column 16, lines 1-6, column 20, lines 29-42 and column 27, lines 26-60 of Shin are cited for explicitly and inherently disclosing the feature of repeating the inputting and analyzing steps until the end condition is met.

Applicant(s) argue(s) that there is no motivation to combine the expert system teachings of Malone with the decoding method and apparatus teachings of Heichler (Amendment REMARKS page 29, paragraph 5). Applicant's 35 USC 103 motivation to combine Malone with Heichler argument has been considered but is moot in view of the new ground(s) of rejection as recited above.

Applicant(s) argue(s) that Heichler is non-analogous art differing in both form and structure from Malone's expert system as well as Orfali's expert system (Amendment REMARKS page 30, paragraph 1). Applicant's 35 USC 103 Heichler vs. Malone and Orfali non-analogous art argument has been considered but is moot in view of the new ground(s) of rejection as recited above.

Applicant(s) argue(s) that Nishiya fails to make up for the deficiencies of Malone, Orfali and Heichler, specifically a polynomial link of n to m as recited in claims 1-25 and 27-37 (Amendment REMARKS page 30, paragraph 4). The Nishiya's failings arguments are agreed with. However, column 24, lines 47-67, column 18, lines 23-40, column 20, lines 64-67, column 21, lines 1-5, column 35, lines 1-9 and column 35, lines 15-23 of Altschuler is cited for explicitly and inherently disclosing a polynomial link of n to m . Further, column 21, lines 8-13 of Altschuler provides reducing lattice size and preserving inherent entity relationships as the motivation for combining Altschuler with Warren.

As set forth above with regards to Warren, Shin and Altschuler, the items listed explicitly and inherently teach each element of the applicants' claimed limitations. Applicants have not set forth any distinction or offered any dispute between the claims of the subject application, Warren's Encyclopedia of software components, Shin's Table allocating apparatus and method and Altschuler's Methods and apparatus for finding semantic information, such as usage logs, similar to a query using a pattern lattice data space.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- *Warren et al*; USPN 5,632,022; Encyclopedia of software components
- *Shin et al*; USPN 5,808,914; Table allocating apparatus and method

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- *Altschuler et al*; USPN 6,556,983; Methods and apparatus for finding semantic information, such as usage logs, similar to a query using a pattern lattice data space

- *Burt*; USPN 4,595,982; Expert system and method for making decisions in accordance with the decisions of a mentor

Any inquiry concerning this communication or earlier communications from the Office should be directed to Melvin Bell whose telephone number is 571-272-3680. This Examiner can normally be reached on Mon - Fri 7:30 am - 4:30 pm.

If attempts to reach this Examiner by telephone are unsuccessful, his supervisor, Anthony Knight, can be reached on 571-272-3687. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

MB / *q.m.k.*


Anthony Knight
Supervisory Patent Examiner
Group 3600